

REMARKS

Claim 78 has been amended herein, while Claims 1-69 and 79 have been cancelled. Accordingly, Claims 70-78 and 80-82 are pending. Support for the amendment to the claims is found throughout the specification as originally filed. No new matter has been introduced with the foregoing amendment. Reconsideration is respectfully requested.

Rejections Under 35 U.S.C. § 102

A. Claims 1-3

Claims 1-3 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,310,523 ("Smethers et al."). Solely to expedite prosecution, Applicants have cancelled Claims 1-3, thereby obviating the rejection. Applicants respectfully request that the 102 rejection be withdrawn.

B. Claims 1-4, 21-24, 26 and 27

Claims 1-4, 21-24, 26 and 27 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,945,334 ("Besemer et al."). Solely to expedite prosecution, Applicants have cancelled Claims 1-4, 21-24, 26 and 27, thereby obviating the rejection. Applicants respectfully request that the 102 rejection be withdrawn.

C. Claims 78-81

Claims 78-81 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 4,390,499 ("Curtis et al."). According to the Office Action, Curtis discloses a device comprising a circular substrate, a plurality of flow channels, a break-away wall, and DNA immobilized on an active layer (*see*, page 6 of the Office Action). To the extent the rejection is applicable to the amended set of claims, Applicants respectfully traverse the rejection. Applicants have amended claim 78 to incorporate the features of claim 79, specifying that the claimed bio-disc further comprises DNA immobilized on an active layer associated with the flow channels.

The Office Action alleges that Curtis, et al. disclose a device comprising DNA immobilized on the active layer. The Office Action cites column 4, lines 48-52, of Curtis et al. in support of the rejection. However, in fact, Curtis et al. do *not* recite DNA at any point in the

disclosure. The cited passage in Curtis discusses an apparatus useful to screen for blood serum components such as AST, albumin, alkaline phosphatase, amylase, bilirubin, blood urea nitrogen, cholesterol, CPK, creatinine, glucose, AGPT, LDH, total protein, triglycerides and uric acid (*see*, column 4, lines 48-57 of Curtis et al.). No mention of bound DNA can be found in this, or any, passage of Curtis, et al. Moreover, Curtis et al. do not teach immobilization of DNA on its apparatus. Contrary to what is stated in the Office Action, Curtis et al. do not teach a device comprising DNA immobilized on an active layer. Therefore, Curtis et al. do not anticipate the present invention. As such, Applicants respectfully request that this 102 rejection be withdrawn.

Objection

The Examiner objected to Claim 82 as being dependent upon a rejected base claim, but stated that it would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (*see*, page 21 of the Office Action). In view of Applicant's discussion set forth above regarding Claims 78-81, Applicants respectfully assert that because Independent Claim 78 is allowable over Curtis et al., Claim 82, which depends from Claim 78, is also allowable. Applicants contend Claim 82 is also allowable because it recites independently patentable features. For this reason, Applicants respectfully request that this objection be withdrawn.

First Rejection Under 35 U.S.C. § 103

Claims 1-4, 11-14, 16-19, 21-24, 43-46, 70-73 and 76 have been rejected under 35 U.S.C. § 103(a) for alleged obviousness in view of U.S. Patent No. 5,922,617 ("Wang et al.") in view of Smethers et al. Applicants respectfully disagree, however solely in order to expedite prosecution, Applicants have cancelled claims 1-4, 11-14, 16-19, 21-24, and 43-46, thereby obviating the rejection of these claims. With respect to the rejection of Claims 70-73 and 76, Applicants respectfully traverse the rejection for the reasons discussed below.

To establish a *prima facie* case of obviousness a three-prong test must be met. First, there must be some suggestion or motivation, either in the references or in the knowledge generally available among those of ordinary skill in the art, to combine reference teachings. Second, there must be a reasonable expectation of success found in the prior art. Third, the prior

art reference(s) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

Applicants respectfully assert that there is no *prima facie* case of obviousness because the prior art references, alone or in combination, do not teach or suggest all the claim limitations.

The claimed invention relates to transmissive bio-discs. Claim 70 recites a bio-disc comprising a circular substrate, a reflective layer adapted to reflect an interrogation beam, target zones, and an active layer associated with the reflective layer. (*See*, page 24, lines 19-35, and at page 25, lines 1-5, Figure 22 a-d, and Figure 26 of the specification.) Claim 70 further recites that the target zones are disposed in the reflective layer and permit an interrogation beam to pass through the reflective layer. The active layer comprises immobilized capture-DNA positioned to be contacted by the interrogation beam as it passes through the target zones in the reflective layer.

With regards to the rejection of Claim 70, the Office Action alleges that Wang et al. teach a device having a circular substrate, a reflective layer, and a plurality of target zones disposed in the reflective layer at column 10, line 20, column 11, line 9, and Figures 5-7, and that Figure 7 suggests interrogation as claimed (*see*, pages 11 and 12 of the Office Action). The Office Action notes that Wang, et al. do not teach the claimed functionality of an active layer associated with a reflective layer and target zones wherein the active layer comprises immobilized capture-DNA positioned to be contacted by an interrogation beam as it passes through the target zones. Initially, Applicants note that this rejection under 35 U.S.C. § 103 is in view of the single Wang, et al. reference. However, the Office Action does not state what modification of Wang would be necessary in order to arrive at the claimed subject matter. Nor does the Office Action provide an explanation of why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification (*See* MPEP 706.02(j)). For this reason, the Office Action fails to meet its burden of rejecting Claim 70 as *prima facie* obvious.

Applicants note that the device of Wang et al. does *not* comprise a reflective layer having target zones which allow passage of an interrogation beam such that the interrogation beam then contacts the DNA molecules present on an adjacent active layer. In contrast to the present invention, Wang et al. teach a device comprising a solid substrate (a disk) divided into coded addressable sites with biological material at the sites (*see*, column 10, lines 20-23 of Wang et al.). Wang et al. teach that a header is associated with a detectable signal on the disk. Wang

et al. further teach that the header, which is normally photodetectable, identifies the site of the detectable signal complex. Wang et al. further teach that a scanner may be programmed to only scan one or more sections of the disk (*see*, lines 8-9 of Wang et al.). Wang et al. do not teach or suggest a reflective layer with an associated active layer which is only accessible by an interrogation beam via target zones. A beam directed toward the device of Wang et al. would not be deflected from a section of an active layer by interference of a reflective layer because the device lacks such a reflective layer.

Figures 5-7 of Wang et al. clearly show that the device does not consist of a reflective layer associated with an active layer. In stark contrast, Figure 22 a-d and Figure 26 of the present application clearly depict a reflective layer, an active layer, and target zones which allow the interrogation beam to contact DNA on the active layer. Thus, Wang et al. do *not* teach or suggest all the claim limitations. As such, Claims 70-73 and 76 would not be obvious to one of ordinary skill in the art at the time the invention was made. For this reason, Applicants respectfully request that this obviousness rejection be withdrawn.

With regards to Claims 71-72, the Office Action states that Wang, et al. do not teach a membrane comprising a fluidic circuit associated with the active layer and immobilized DNA. According to the Office Action, Smethers, et al. cure this deficiency by disclosing a channeled membrane which in combination with Wang, et al. allegedly make Claims 71-72 obvious to one of ordinary skill in the art. However, as discussed above, Wang et al. do not teach or suggest a reflective layer with an associated active layer which is only accessible by an interrogation beam via target zones. The combination of Wang, et al. with Smethers, et al. does not cure this deficiency. Accordingly, the Office Action does not meet its burden of putting forth a *prima facie* case of obviousness. For this reason, Applicants respectfully request withdrawal of this rejection.

Second Rejection Under 35 U.S.C. § 103

Claims 74 and 75 have been rejected under 35 U.S.C. § 103(a) for allegedly being obvious under Wang et al. in view of Smethers et al. and in further view of Besemer et al. However, as discussed above, none of these references cure the deficiency in Wang et al. since neither Smethers nor Besemer teach or suggest a reflective layer with an associated active layer which is only accessible by an interrogation beam via target zones.

In view of Applicant's discussion set forth above regarding Claims 70-72, Applicants respectfully request withdrawal of this rejection. Thus, Applicants respectfully request that the Examiner withdraw the rejection of Claims 74 and 75.

Discussion of Double Patenting

Claims 11-15 and 21-30 have been provisionally rejected under the judicially created doctrine of obviousness-type patenting as being unpatentable over claims 29-66 of copending Application No. 10/086,941. Claims 11-15 and 21-30 have been cancelled without prejudice, thereby obviating the rejection. Applicants respectfully request that the double patenting rejection be withdrawn.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: August 15, 2005

By: 

Michael L. Fuller
Registration No. 36,516
Attorney of Record
Customer No. 20,995
(619) 235-8550

1823445
072005
1867586
081505